

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1 – 21. (canceled)

22. (new) A digital multimedia broadcasting system, comprising:

an encoding means for encoding inputted audio/video signals;

a system encoding means for objectifying data for an interactive service and synchronizing a media stream which is outputted from the encoding means, a media stream of additional data and a media stream which is generated by objectifying the data for the interactive service;

a multiplexing means for multiplexing media streams outputted from the system encoding means;

an error correction encoding means for performing additional error correction encoding onto a media stream outputted from the multiplexing means;

an interleaving means for removing temporal correlation between adjacent byte units within a media stream outputted from the error correction encoding means; and

a transmitting means for transmitting a digital multimedia broadcasting media stream outputted from the interleaving means,

wherein the transmitting means is one of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system.

23. **(currently amended)** The system as recited in Claim **[[1]] 22**, wherein the audio/video signals are obtained by converting multimedia source data into data stream of a predetermined format through a preprocessing.

24. **(currently amended)** The system as recited in Claim **[[1]] 22**, wherein the encoding means converts the inputted video signal into a format of 'Moving Picture Experts Group (MPEG)-4 Part 2' or a format of 'MPEG-4 Part 10', which is Advanced Video Coding (AVC).

25. **(currently amended)** The system as recited in Claim **[[1]] 22**, wherein the encoding means converts the inputted audio signal into one of formats of 'Advanced Audio Coding (AAC)', 'Advanced Audio Coding Plus (AAC+)', and 'Bit Sliced Arithmetic Coding (BSAC)'.

26. **(currently amended)** The system as recited in Claim **[[1]] 22**, wherein the system encoding means includes:

an Object Descriptor (OD)/Binary Format for Scene (BIFS) generating means for generating OD/BIFS for the interactive service;

an Initial Object Descriptor (IOD) generating means for generating an IOD;
and

a sync layer packetizing means for synchronizing media streams outputted from the encoding means and the OD/BIFS generating means.

27. **(currently amended)** The system as recited in Claim **[[5]] 26**, wherein the multiplexing means includes:

a PES packetizing means for generating a Program Elementary Stream (PES) packet based on a packet which is generated in the sync layer packetizing means based on the media stream outputted from the encoding means;

a section packetizing means for generating sections based on a data which is outputted from the IOD generating means and a packet which is generated in the sync layer packetizing means based on a OD/BIFS stream, wherein the OD/BIFS stream is outputted from the OD/BIFS generating means; and

a transport stream (TS) packetizing means for packetizing data outputted from the PES packetizing means and the section packetizing means into transport stream.

28. **(currently amended)** The system as recited in Claim **[[6]] 27**, wherein the section packetizing means includes:

a 14496 section packetizing means for generating 14496 section based on the packet which is generated in the sync layer packetizing means based on the OD/BIFS stream; and

a Program Service Information (PSI) generating means for generating PSI based on the data outputted from the IOD generating means.

29. **(currently amended)** The system as recited in Claim **[[1]] 22**, wherein the error

correction encoding means is a Reed-Solomon (RS) encoder.

30. (currently amended) The system as recited in Claim **[[1]] 22**, wherein the interleaving means is composed of 12 branches and the branches individually include a plurality of memories having a 17bytes x N unit where $N=0, 1, 2, \dots, 11$, and input/output switches operating in synchronization with each other; sync words are transmitted always through a '0' branch for synchronization; and synchronization of a deinterleaver is acquired by allocating a first recognized sync word to the '0' branch of the deinterleaver.

31. (currently amended) The system as recited in Claim **[[1]] 22**, further comprising an Ensemble Transport Interface (ETI) converting means for converting the digital multimedia broadcasting media stream outputted from the interleaving means into an ETI frame and delivering the ETI frame to the transmitting means.

32. (currently amended) The system as recited in Claim **[[1]] 22**, further comprising an Internet Protocol (IP) datagram converting means for converting the digital multimedia broadcasting media stream outputted from the interleaving means into an IP datagram and delivering the IP datagram to the transmitting means.

33. (new) A digital multimedia broadcasting system, comprising:
a receiving means for receiving digital multimedia broadcasting media stream;

a deinterleaving means for deinterleaving the received digital multimedia broadcasting media stream which is interleaved to remove temporal correlation in adjacent byte units;

an error correction decoding means for performing additional error correction decoding onto the deinterleaved digital multimedia broadcasting media stream which is generated from additional error correction encoding;

a demultiplexing means for demultiplexing the additional error correction decoded digital multimedia broadcasting media stream which is multiplexed;

a system decoding means for decoding the demultiplexed digital multimedia broadcasting media stream to produce media stream, additional data, and data objectified for an interactive service; and

a decoding means for decoding the media stream into audio/video signals, wherein the receiving means is one of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system.

34. (currently amended) The system as recited in Claim **[[12]] 33**, wherein the decoding means decodes a video signal included in the media stream based on 'Moving Picture Experts Group (MPEG)-4 Part 2' or 'MPEG-4 Part 10' which is Advanced Video Coding (AVC).

35. (currently amended) The system as recited in Claim **[[12]] 33**, wherein the decoding means decodes an audio signal included in the media stream based on one of

'Advanced Audio Coding (AAC)', 'Advanced Audio Coding Plus (AAC+)', and 'Bit Sliced Arithmetic Coding (BSAC)'.

36. (currently amended) The system as recited in Claim **[[12]] 33**, wherein the error correction decoding means is a Reed-Solomon (RS) decoder.

37. (new) A digital multimedia broadcasting method, comprising the steps of:

- a) encoding inputted audio/video signals;**
- b) objectifying data for an interactive service and synchronizing a media stream which is outputted from the step a), a media stream of additional data and a media stream which is generated by objectifying the data for the interactive service;**
- c) multiplexing the media streams outputted from the step b);**
- d) performing additional error correction encoding onto a media stream outputted from the step c);**
- e) performing interleaving to remove temporal correlation between adjacent byte units within a media stream outputted from the step d); and**
- f) transmitting a digital multimedia broadcasting media stream outputted from the step e),**

wherein the step f) is performed by using one of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system.

38. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the audio/video signals are obtained by converting multimedia source data into data stream of a predetermined format through a preprocessing.

39. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the step a) converts the inputted video signal into a format of 'Moving Picture Experts Group (MPEG)-4 Part 2' or a format of 'MPEG-4 Part 10', which is Advanced Video Coding (AVC).

40. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the step a) converts the inputted audio signal into one of formats of 'Advanced Audio Coding (AAC)', 'Advanced Audio Coding Plus (AAC+)', and 'Bit Sliced Arithmetic Coding (BSAC)'.

41. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the step b) includes the steps of:

b1) generating an Object Descriptor (OD)/ Binary Format for Scene (BIFS) for the interactive service;

b2) generating an Initial Object Descriptor (IOD); and

b3) performing a sync layer packetization to synchronize media streams outputted from the step a) and the step b1).

42. (currently amended) The method as recited in Claim **[[20]] 41**, wherein the step

c) includes the steps of:

c1) generating a Program Elementary Stream (PES) packet based on a packet which is generated in the step b3) based on the media stream outputted from the step a);

c2) generating sections based on a data which is outputted from the step b2) and a packet which is generated in the step b3) based on a OD/BIFS stream, wherein the OD/BIFS stream is outputted from the step b1); and

c3) packetizing data outputted from the step c1) and the step c2) into transport stream.

43. (currently amended) The method as recited in Claim **[[21]] 42**, wherein the step c2) includes the steps of:

c21) generating 14496 section based on the packet which is generated in the step b3) based on the OD/BIFS stream; and

c22) generating PSI based on the data outputted from the step b2).

44. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the step d) is performed in a Reed-Solomon (RS) encoder.

45. (currently amended) The method as recited in Claim **[[16]] 37**, wherein the step e) is performed in an interleaving means which is composed of 12 branches and the branches individually include a plurality of memories having a 17bytes x N unit where $N=0, 1, 2, \dots, 11$, and input/output switches operating in synchronization with each other;

sync words are transmitted always through a '0' branch for synchronization; and
synchronization of a deinterleaver is acquired by allocating a first recognized sync word
to the '0' branch of the deinterleaver.

46. (currently amended) The method as recited in Claim **[[16]] 37**, further
comprising the step of:

g) converting the digital multimedia broadcasting media stream outputted from
the step e) into an ETI frame and delivering the ETI frame to the step f).

47. (currently amended) The method as recited in Claim **[[16]] 37**, further
comprising the step of:

h) converting the digital multimedia broadcasting media stream outputted from
the step e) into an IP datagram and delivering the IP datagram to the step f).

48. (new) A digital multimedia broadcasting method, comprising the steps of:

- a) receiving digital multimedia broadcasting media stream;**
- b) deinterleaving the received digital multimedia broadcasting media stream which is interleaved to remove temporal correlation in adjacent byte units;**
- c) performing additional error correction decoding onto the deinterleaved digital multimedia broadcasting media stream which is generated from additional error correction encoding;**
- d) demultiplexing the additional error correction decoded digital multimedia broadcasting media stream which is multiplexed;**

e) decoding the demultiplexed digital multimedia broadcasting media stream to produce media stream, additional data, and data objectified for an interactive service; and

f) decoding the media stream into audio/video signals,
wherein the step a) is performed by using one of a digital audio broadcasting system, a digital television (TV) broadcasting system, a digital satellite broadcasting system, and a digital cable broadcasting system.

49. (currently amended) The method as recited in Claim ~~[[27]]~~ **48**, wherein the step f) decodes the video signal included in the media stream based on 'Moving Picture Experts Group (MPEG)-4 Part 2' or 'MPEG-4 Part 10' which is Advanced Video Coding (AVC).

50. (currently amended) The method as recited in Claim ~~[[27]]~~ **48**, wherein the step f) decodes the audio signal included in the media stream based on one of 'Advanced Audio Coding (AAC)', 'Advanced Audio Coding Plus (AAC+)', and 'Bit Sliced Arithmetic Coding (BSAC)'.

51. (currently amended) The method as recited in Claim ~~[[27]]~~ **48**, wherein the step c) is performed in a Reed-Solomon (RS) decoder.